CS-350-T3346 Emerging Systems Architectures & Technologies

2-1 Milestone One

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* How is non-volatile memory different in an embedded system and a desktop system?

First off, what is non-volatile memory, non-volatile memory is memory that persists after power is lost. Below is how non-volatile memory is used in the two different systems:

* + Embedded Systems – In embedded systems non-volatile memory is used to store applications or programs that a microcontroller is supposed to run at startup. It can also contain data for redundancy purposes as in the case with our 3220 boards how they have a specific jumper you can set which will restore the default image on the unit. Embedded systems can also use non-volatile memory to store identity data and encryption data.
  + Desktop Systems – On desktop systems non-volatile memory is used to store applications, user data, BIOS, and operating systems. On desktop systems the BIOS stores the code needed to startup a computer in non-volatile memory that is powered by a CMOS battery, many people believer that because the BIOS is powered by the CMOS battery it is volatile, but it is not, BIOS stores it’s information in flash memory which is non-volatile.
* What are the differences between embedded systems and desktop systems?  
  One of the major differences between embedded systems and desktop systems is the number of components used to make them run. Desktop systems require and utilizes a lot more components that that of an embedded system. Desktop systems are used for general purpose whereas embedded systems are usually created for a specific purpose to do a specific set of functions. Embedded systems can also run without the need for human interaction where desktop systems are created for interactions with humans. Embedded systems are more simplistic than desktop systems is terms of hardware.
* What are the advantages of various embedded system architectures?
  + Embedded systems usually have better performance than desktop systems.
  + More simplistic as they do not require all the various components desktop systems require.
  + The cost for an embedded system is less expensive when compared to a desktop system.
  + Embedded systems are more reliable because they have fewer working parts and they are also smaller than desktop systems.
  + They do not consume as much power as a desktop system
  + Embedded systems are extremely portable due to the small size.